

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>H103-2666-WO</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/011990</b>	International filing date (day/month/year) <b>20.08.2004</b>	Priority date (day/month/year) <b>12.09.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>B01J23/63, B01D53/94, B01J37/08, F01N3/10</b>		
Applicant <b>HONDA MOTOR CO., LTD.</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input checked="" type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2), with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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## Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted the claims nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
  - ☒ not complied with for the following reasons:

The matter common to claims 1 to 9 is an exhaust gas clarification catalyst comprising an aluminium oxide and, supported thereon, a palladium oxide.

However, the search has revealed that the catalyst is disclosed in the document JP 05-285387 A (Hitachi, Ltd. et al.), 2 November 1993, claims 1 and 2, and thus it is clear that the catalyst lacks novelty.

As a result, the above catalyst falls within the scope of the prior art, and therefore, the common matter (the above catalyst) is not a special technical feature within the meaning of PCT Article 13.2, second sentence.

Therefore, since there is no other common matter among the inventions according to claims 1 to 5 and 9 and the inventions according to claims 6 to 8, which is considered to be a special technical feature within the meaning of PCT Article 13.2, second sentence,  
(Continued in Supplemental Box)

4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
  - ☐ the parts relating to claims Nos. \_\_\_\_\_

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	3-8	YES
	Claims	1, 2, 9	NO
Inventive step (IS)	Claims		YES
	Claims	1-9	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
Document 1: JP 01-168343 A (Toyota Central R&D Labs., Inc.), 3 July 1989			
Document 2: JP 62-282642 A (Toyota Motor Corporation), 8 December 1987			
Document 3: JP 03-068451 A (Toyota Motor Corporation et al.), 25 March 1991			
Document 4: JP 05-285387 A (Hitachi, Ltd. et al.), 2 November 1993			
Document 5: JP 51-123794 A (E.I. Dupont Nemours and Co.), 28 October 1976			
<p>The inventions set forth in claims 1, 2 and 9 lack novelty in the light of documents 1 and 4 cited in the international search report.</p> <p>Documents 1 and 4 set forth a catalyst for clarifying exhaust gas having palladium supported on <math>\text{LaAlO}_3</math>, and a catalyst device for clarifying motor vehicle exhaust gas using said catalyst. <math>\text{LaAlO}_3</math> exhibits trigonal or rhombohedral crystals, as described in the description of this application.</p> <p>The invention set forth in claims 3 to 8 does not involve an inventive step in the light of documents 1 to</p>			

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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4 cited in the international search report.

Claim 3

When using palladium as the catalyst metal of a catalyst for clarifying exhaust gas, having the supported palladium serve as a perovskite composite oxide in order to prevent deterioration under high-temperature reduction was a known technique at the time of filing of this application (see document 2, for example). That being the case, it would be easy for a person skilled in the art to conceive of supporting palladium as a perovskite complex oxide in order to prevent deterioration of a catalyst in the catalyst for clarifying exhaust gas set forth in documents 1 and 4.

Claims 4 to 8

It was known at the time of filing of this application that  $\text{LaAlO}_3$  could adopt a perovskite structure. Moreover, it is a known technique in common practice to have a carbonic acid complex serve as a constituent element in producing a perovskite composite oxide (see document 3, for example).

The inventions set forth in claims 1 to 9 do not involve an inventive step in the light of documents 2, 3 and 5 cited in the international search report.

Document 5 sets forth, as a three-way catalyst, a catalyst which is obtained by supporting a perovskite composite oxide containing a catalytic active metal on a perovskite composite oxide support such as  $\text{LaAO}_3$ .

Meanwhile, using a perovskite composite oxide containing palladium as the catalytic active component of a three-way catalyst was a known technique at the time of

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

filing of this application (see document 2, for example). That being the case, in the three-way catalyst set forth in document 5, it would be easy for a person skilled in the art to conceive of supporting a perovskite composite oxide containing palladium on a  $\text{LaAlO}_3$  support. It is a known technique in common practice to have a carbonic acid complex serve as a constituent element in the production of perovskite composite oxides (see document 3, for example).

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## Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

a) Patent document 1 set forth in paragraph [0004] of the description of this application pertains to a thermoplastic resin composition. There is understood to be an error in the number of patent document 1.

b) Paragraph [0039] of the description contains the wording "produce Pd/Al<sub>2</sub>O<sub>3</sub> using the same method as in production example 1". However, production example 1 is a method of fabricating and a method of supporting composite oxides, therefore it is unclear to what type of production method producing Pd/Al<sub>2</sub>O<sub>3</sub> "using the same method" as in said production example refers to.

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## Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 4 and 6 contain the wording "the step of adding... to group of compounds (OH group)". However, it is unclear whether said "step" refers to a step of manufacturing the support component, or refers to a step of producing a support component, or refers to both steps, therefore claims 4 and 6 are unclear. In making the assessment of inventive step, in the light of paragraph [0009] of the description, said process was deemed to refer to the step of producing the support component.



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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

(Continued from Box IV.3)

no technical relationship within the meaning of PCT Article 13.2 can be found between those different inventions.

Accordingly, it is clear that claims 1 to 9 do not comply with the requirement of unity of invention.